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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/775,887	02/10/2004	Robert L. Ponziani		1428

7590 03/30/2005
General Electric Co.
One Neumann Way, H17
Cincinnati, OH 45215

EXAMINER

DEB, ANJAN K

ART UNIT PAPER NUMBER

2858

DATE MAILED: 03/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/775,887	PONZIANI ET AL.	
	Examiner	Art Unit	
	Anjan K. Deb	2858	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 February 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-15 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>02/10/2004</u> | 6) <input checked="" type="checkbox"/> Other: <u>Claims (renumbered)</u> |

DETAILED ACTION

Specification

1. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 12-16 have been renumbered as claims 11-15 (see attached).

Election/Restrictions

2. Restriction to one of the following inventions is required under 35 U.S.C. 121:

This application contains claims directed to the following patentably distinct species of the claimed invention:

- I. Claims 1-10, 15, drawn to method of sensing spark in a gas turbine engine, comprising a sensor, classified in class 324, subclass 402.
- II. Claims 11-14, drawn to method of detecting spark, comprising detecting current in a conductive shield around a supply conductor, classified in class 324, subclass 522.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, there is no generic claim.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

A telephone call was made to Hayden, Scott on 3/15/2005 to request an oral election to the above restriction requirement. In a telephone message a provisional election without traverse to prosecute the invention of Group I, claims 1-10, 15 was made by Mr. Welte, Gregory on 3/20/2005. Affirmation of this election must be made by applicant in replying to this Office action. Claims 11-14 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 4-6, 8, 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Owens (US 5,508,618).

Re claim 1, 15 Owens discloses (Fig. 1) method of sensing spark in an igniter in a gas turbine engine (abstract) comprising sensor (detector 10)(30) adjacent a surface of the igniter

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(column 3 lines 64-67), using the sensor (detector 10)(30) to detect spark (sparking event), and issuing a signal when spark is detected (column 4 lines 17-21).

Re claim 4, Owens discloses the surface is electrically conductive and connected to a system ground (see Fig. 1).

Re claims 5,8, Owens discloses sensor (detector 10) comprises an inductive pick-up (30) (column 4 lines 8-11) wherein no electrical current passing through the igniter enters the sensor.

Re claim 6, Owens disclosed gas turbine engine powers an aircraft (engine for aerospace application)(column 2 lines 63-67), and the signal is issued to a pilot station in the aircraft (go/no-go indication)(column 4 lines 2-5).

5. Claims 1, 4-5, 8, 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Hannah et al. (US 5,194,813).

Re claim 1, 15 Hannah et al. discloses method of sensing spark in an igniter in a gas turbine engine (internal combustion engine) comprising sensor (probe) 16 adjacent a surface of the igniter, using the sensor to detect spark (sparking event), and issuing a signal when spark is detected (column 2 lines 55-61).

Re claim 4, Hannah et al. discloses the surface is electrically conductive and connected to a system ground (see Fig. 2).

Re claims 5,8, Hannah et al. discloses sensor (Probe 16) comprises an inductive pick-up (column 4 lines 47-50) wherein no electrical current passing through the igniter enters the sensor.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 7, 9, 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Owens (US 5,508,618) in view of Warner (US 4,090,125).

Re claims 7,10 Owens disclosed all of the claimed limitations as set forth above except first and second conductive shield.

Warner discloses (Fig. 1) ignition detection system for internal combustion engines comprising first conductive shield 21 and second conductive shield (the transformer and its connection to the spark plug are also shielded) (column 3 lines 27-32) to effectively confine any radiation from transformer 35 (Fig. 2)(column 4 lines 56-57).

At the time of the invention it would have been obvious for one of ordinary skill in the art to modify Owens by adding first and second conductive shield disclosed by Warner for electrical shielding to prevent radiation from external sources.

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Re claim 9, Owens disclosed all of the claimed limitations as set forth above except igniter forms a core of the coil.

Warner discloses inductive pickup coil wherein igniter forms a core (transformer) of the coil (column 3 lines 52-58).

At the time of the invention it would have been obvious for one of ordinary skill in the art to modify Owens by adding igniter core to form a core of the induction pick up coil disclosed by Warner for improved magnetic coupling between sensor coil and the igniter.

8. Claims 2, 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Owens (US 5,508,618) in view of DeFreitas (US 5,499,497).

Re claim 2, Owens disclosed all of the claimed limitations as set forth above except igniter surface reaches a temperature of 175 F or greater during normal operation of the engine.

DeFreitas discloses temperature detector for an igniter (plug) wherein igniter surface reaches a temperature of 175 F or greater during normal operation of the engine (Fig. 5).

At the time of the invention it would have been obvious for one of ordinary skill in the art to modify Owens by adding sensor suitable for placing on an igniter surface that reaches a temperature of 175 F or greater since DeFreitas teaches that igniter reaches a temperature of 175 F or greater temperature during normal operation of the engine.

Re claim 3, Owens discloses sensor (detector 10)(30) is in contact with surface of igniter (column 3 lines 64-67).

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Wixon (US 4,783,991) discloses ignition spark monitor by capacitive sensor (Fig. 4) comprising cable 41 with shield to eliminate radio interference problems.

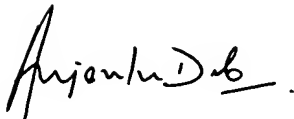
Kravis (US 6,426,626 B1) discloses (Fig. 1) sensing spark in an igniter (spark plug) comprising an inductive pick-up coil 16 connected to capture circuit 56 (Fig. 2) for detecting sparking wherein part of the igniter (spark plug) forms a core for the coil 16.

Skerritt (US 4636777) discloses sensor (sonic transducer) for sensing spark adjacent a surface of igniter in gas turbine engine.

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Contact Information

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Anjan K. Deb whose telephone number is 571-272-2228. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lefkowitz Edwards can be reached at 571-272-2180.



Anjan K. Deb

Patent Examiner

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3/21/05

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